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AUTHOR Rotter, Naomi G.; O'Connell, Agnes N.
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ABSTRACT

The relationship between self-described sex roles and two measures of cognitive style (intolerance for ambiguity and level of abstractness-concreteness) were explored. Subjects were 87 male and 204 female college students. The Schroder and Streufert measure of cognitive style, the Budner Intolerance for Ambiguity Scale (1962), and the Bem Sex Role Inventory were utilized. Data were analyzed using two 2x4 analyses of variance. Independent variables were sex and sex role. Dependent variables were cognitive style and tolerance for ambiguity. Findings indicate the following: (1) androgynous and cross-sexed males and females are more tolerant of ambiguity than sex-typed individuals and cognitively more abstract than undifferentiated subjects; (2) cross-sexed subjects are more abstract than sex-typed; and (3) cognitive style and tolerance for ambiguity are better predictors of sex-role than is sex. (JLL)

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Are Sex-Role Orientation, Cognitive Style, and Tolerance for Ambiguity Related?[1]

Naomi G. Rotter and Agnes N. O'Connell[2]
New Jersey Institute of Technology and Montclair State College

Purpose

Considerable research exists on biological sex differences in cognitive styles (e.g., Nelson, Note 1), but scant attention has been paid to the relationship between psychological sex roles, including androgyny, and cognitive styles. Psychological androgyny involves ascribing to the self both masculine and feminine traits (Bem, 1976). It is related to high self-esteem (Spence, et al, 1975), to internal locus of control (Hoffman and Fidell, Note 2), and to the ability to adapt, depending upon the situation, to either an instrumental (masculine) or expressive (feminine) role (Bem, 1975; Bem and Lenny, 1976).

Cognitive style is widely conceived in terms of a strategy for processing information and handling problem solving tasks. Frenkel-Brunswick (1949) defines such a strategy, intolerance for ambiguity, as the "tendency to resort to black-white solutions, to arrive at premature closure as to valuative aspects, often at the neglect of reality, and to seek for unqualified and unambiguous overall acceptance and rejection of other people (p. 115)."

This definition can be extended to stimulus objects or situations which convey inconsistent or contradictory information (Norton, 1975). Therefore, it seems likely that Bem's

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[2]Both authors are senior authors.

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concept of androgyny is related to a tolerance for ambiguity since it entails within one person divergent and contradictory personality traits.

It is proposed here that those persons who score as either androgynous or cross-sexed on the Bem Sex Role Inventory (1974) are reflecting an aspect of tolerance for ambiguity, i.e., they can accept a self-concept which contains information discrepant from stereotypic sex-role definitions. Conversely, individuals who score as sex-typed are demonstrating a form of intolerance for ambiguity in that they define their sex roles in a fashion consistent with stereotypic prescriptions. Bem's research (1976) would appear to substantiate this notion. She reports that sex-typed subjects, more than androgynous and cross-sexed subjects, not only prefer to perform activities typed as consistent with their sex role but experience greater discomfort when performing cross-sexed activities.

The present study seeks to explore the relationship between self-described sex roles and two measures of cognitive style: intolerance for ambiguity and level of abstractness-concreteness. Specifically, it is hypothesized that (1) androgynous and cross-sexed subjects will show more tolerance for ambiguity, and (2) more abstractness than sex-typed or undifferentiated subjects.

Subjects

Subjects were 87 male and 204 female graduate and undergraduate students attending Montclair State College. They ranged in age from 17 to 57 years (median age = 23 years). Participation was voluntary and anonymous.

Procedure

The Schroder and Streufert (Note 3) measure of cognitive style was used to assess level of abstractness-concreteness of cognitive functioning. This measure consists of eight sentence stems which serve as initiators of two or more sentences on each topic. The subject completed each stem in 90 seconds. The experimenter indicated when to begin each stem, when 75 seconds had passed, and when to proceed to the next stem. Two independent raters scored the responses for level of abstractness (5 = abstract; 1 = concrete). Inter-rater reliability averaged .89 across the eight stems.

The Budner Intolerance for Ambiguity Scale (1962) was used to measure tolerance for ambiguity, novelty and complexity. It consists of 16 items on a 7-point Likert-type scale in which 1 = tolerance and 7 = intolerance of ambiguity; hence a low score is said to reflect tolerance for ambiguity.

To determine sex-role, the Bem Sex Role Inventory (BSRI) (1974) was used. The BSRI was scored according to the median split method (Bem & Watson, Note 4). A weight factor of 2.34 was used for male subjects to compensate for unequal sample size. Having a masculine role orientation were 40% of the male Ss and 11% of the female Ss. That is, they scored above 4.9, the weighted median for the male items and below 5.0, the weighted median for the female items. Having a feminine role orientation were 9% of the males and 41% of the females. That is, they scored above the weighted median of the female items and below the weighted median for the male items. Having an androgynous orientation were 22% of the males and 29% of the females. That is, both scored above

both weighted medians. Finally, scoring as undifferentiated were 29% of the males and 19% of the females. That is, they both scored below both weighted medians.

The students also completed a demographic questionnaire. All questionnaires were completed in groups; all students were debriefed and thanked for their participation.

Results

The data were analyzed using two 2 X 4 analyses of variance. The independent variables were sex (male and female) and sex-role (undifferentiated, sex-typed, cross-sexed, and androgynous). Cognitive style and intolerance for ambiguity were the dependent variables.

The data indicate that both sex ($F(1,281) = 3.927$, $p < .05$) and sex-role ($F(3, 281) = 3.625$, $p < .014$) significantly relate to intolerance for ambiguity. Females ($\bar{X} = 50.48$) are significantly more tolerant of ambiguity than are males ($\bar{X} = 53.13$). Also, as shown in Table 1, t-test analyses indicate that androgynous and cross-sexed Ss show no significant difference from each other in tolerance for ambiguity but both are significantly more tolerant than sex-typed Ss. Androgynous Ss are also significantly more tolerant of ambiguity than undifferentiated Ss while no difference occurs between sex-typed and undifferentiated Ss.

Analysis of cognitive style indicates significant effects for both sex ($F(1, 283) = 5.016$, $p < .026$) and sex-role ($F(3, 283) = 4.107$ $p < .008$). Females ($\bar{X} = 15.116$) are significantly more abstract in style than are males ($\bar{X} = 13.574$). As shown in Table 2, androgynous and cross-sexed Ss do not differ significantly from each other in cognitive style but both are significantly more

abstract in style than are undifferentiated Ss. Also, cross-sexed Ss are significantly more abstract than sex-typed Ss.

In search of further understanding of the relationship among sex-role, intolerance for ambiguity, cognitive style and demographic variables, a multiple correlation was performed using sex-role as the dependent variable. As shown in Table 3, the measures for intolerance for ambiguity and cognitive style emerged as the most significant predictors (multiple r = .272, ($F(3, 289) = 7.67$, $p < .001$)). As the standardized coefficient indicates cognitive complexity is a slightly better predictor of sex-role orientation than intolerance for ambiguity. These two predictors are negatively related ($r(293) = .254$, $p < .01$), i.e., as intolerance for ambiguity decreases abstractness of cognitive style increases. It is interesting to note that sex did not significantly explain variance in sex-role orientation.

Implications and Conclusions

The present study suggests that the androgynous individual's self-concept, adaptability and effectiveness in a broader range of situations than sex-typed individuals (Bem, Martyna, & Watson, 1976) is related to an abstract cognitive style which allows for the processing of ambiguity without an imperative for premature closure. In other words, the propensity for abstractness and the tolerance for ambiguity in androgynous individuals is related to their ability to function in each situation without the tendency to concretize or resort to either-or solutions. In the present sample, this ability is significantly more likely to occur in women, a finding similar to Schneier and Bartol's (Note 5).

Based on the present study and previous research which has found a relationship between sex role orientation and internal locus of control (Hoffman & Fidell, Note 2), the androgynous person emerges as fluid, flexible and willing to take risks. To a considerable extent, the masculine women and feminine men in this study share the traits of abstractness and tolerance for ambiguity.

These data on cognitive style indicate that both androgynous and cross-sexed persons perceive situations marked by novelty and complexity positively--as nonthreatening and non-conflict-laden (Schroder and Streufert, 1962). Their conceptual systems indicate an ability to tolerate diversity within and between people and to integrate such diversity into new and alternative schemas. This abstract cognitive style and tolerance for ambiguity is also displayed in the manner others are perceived. The tendency here is to perceive others as complex and multi-dimensional and not as unidimensional, bi-polar beings who can easily be generalized and dichotomized into masculine-feminine, good-bad, right-wrong. Judgments and perceptions of androgynous and cross-sexed persons are more inclined to be relativistic, depending upon the specific situation and the appropriate characteristics for that situation. Such persons are capable of generating explanations which tie together opposing and/or contradictory traits in themselves and others. Further they are tolerant of those perceived as different from themselves.

A more concrete style and intolerance for ambiguity are related to acceptance of traditonal sex-role definitions and to undifferentiated sex-role orientations. The data indicate that

these persons found novel and complex situations threatening and conflict-laden. Budner (1962) claims one way to respond to threat is through avoidance behavior. This supports Bem's (1976) finding that sex-typed individuals are more likely to avoid activities which are inconsistent with their traditional sex role. The conceptual systems of sex-typed and undifferentiated persons reflect a tendency to compartmentalize, to overgeneralize, to minimize conflict, and to be intolerant of differences from the self. They are more likely to see others as invariably masculine or feminine, good or bad, right or wrong. Compared to the androgynous and cross-sexed persons, both the sex-typed and undifferentiated emerge as more rigid and literal.

This study also indicates that cognitive style and tolerance for ambiguity are better predictors of sex-role orientation than is sex. Although other variables contribute to this phenomenon, cognitive style and tolerance for ambiguity are significantly and vitally related. Perhaps most pertinently, this study emphasizes the importance of moving gender from "figure to ground (Bem, 1976)."

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Table 1

t Statistics for Comparing Mean Intolerance For Ambiguity Scores Between Sex-Role Groups

		Sex-typed	Cross-sexed	Androg.
Undiff.:	$\bar{X}$=53.13; n-61[a]	1.087 ns	1.437 ns	2.559*
Sex-typed:	$\bar{X}$=54.68; n=119	_____	2.258[8]	4.176***
Cross-sexed:	$\bar{X}$=50.26; n=31	_____	_____	1 ns
Androgynous:	$\bar{X}$=49.16; n=78[a]	_____	_____	_____

a. A subjject did not complete IFA Scale

* $p < .05$

** $p < .01$

*** $p < .001$

Table 2

t Statistics for Comparing Mean Cognitive Style Scores Between Sex Role Groups

		Sex-typed	Cross-sexed	Androg.
Undiff.:	$\bar{X}$=12.80; n=62	1.331 ns	3.177**	2.408*
Sex-typed:	$\bar{X}$=13.78; n=119	_____	2.432*	1.378 ns
Cross-sexed:	$\bar{X}$=16.08; n=31	_____	_____	1.370 ns
Androgynous:	$\bar{X}$=14.72; n=79	_____	_____	_____

* $p < .05$

** $p < .01$

*** $p < .001$

Table 3

Predictive Variables for Sex-Role Orientation

Variable	Regression Coefficient	Standardized Coefficient	t	Unique Variance
Cognitive Style	.0408	.179	3.02**	.029
Intolerance for Ambiguity	-.0188	-.159	-2.72**	.024

* $p < .05$

** $p < .01$

*** $p < .001$